

WHAT IS CLAIMED IS:

1. A method of obtaining a digital certificate for communication devices, comprising the steps of:
 - 5 storing digital certificates each with corresponding identification information in a digital certificate management device;
 adding identification information of a communication device to a digital certificate transmission request for obtaining a digital certificate to be used for confirming the communication device during communication;
 - 10 transmitting the identification-information-added digital certificate transmission request to the digital certificate management device;
 receiving a corresponding one of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request;
 - 15 transmitting the correspondingly received digital certificate to the communication device; and
 writing the correspondingly received digital certificate to memory in the communication device.
- 20 2. A method of obtaining a digital certificate for communication devices, comprising the steps of:
 - storing digital certificates each with corresponding identification information in a digital certificate management device;
 - 25 adding identification information of a predetermined number of communication devices for production to a digital certificate transmission request for obtaining digital certificates to be used for confirming the communication devices during communication;
 transmitting the identification-information-added digital certificate transmission request to the digital certificate management device;
 - 30 receiving corresponding ones of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request;

temporarily storing the correspondingly received digital certificates in memory of an information processing device;

inputting a portion of the identification information on the predetermined number of the communication devices;

5 reading the digital certificates corresponding to the inputted identification information from the information processing device;

transmitting each of the correspondingly read digital certificates to a corresponding one of the communication devices according to the inputted identification information; and

10 writing each of the correspondingly read digital certificates to memory in the corresponding one of the communication devices.

3. The method of obtaining a digital certificate for communication devices according to claim 2 further comprising an additional step of coding each of the correspondingly read 15 digital certificates prior to transmitting to a corresponding one of the communication devices according to the inputted identification information.

4. The method of obtaining a digital certificate for communication devices according to claim 2 further comprising an additional step of setting a completion flag indicative of 20 successfully writing the digital certificate in the communication device upon successfully completing said writing step.

5. The method of obtaining a digital certificate for communication devices according to claim 2 further comprising an additional step of deleting the digital certificate from the 25 information processing device upon successfully completing said writing step.

6. A method of obtaining a digital certificate for communication devices, comprising the steps of:

storing digital certificates each with corresponding identification information in a 30 digital certificate management device;

adding identification information of a predetermined number of communication devices for production to a digital certificate transmission request for obtaining digital certificates to be used for confirming the communication devices during communication;

transmitting the identification-information-added digital certificate transmission request to the digital certificate management device;

receiving corresponding ones of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request;

temporarily storing the correspondingly received digital certificates in memory of an information processing device;

scanning a barcode indicative of the identification information on the predetermined number of the communication devices from a predetermined source;

reading the digital certificates corresponding to the scanned identification information from the information processing device;

transmitting each of the correspondingly read digital certificates to a corresponding one of the communication devices according to the scanned identification information; and

writing each of the correspondingly read digital certificates to memory in the corresponding one of the communication devices.

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7. The method of obtaining a digital certificate for communication devices according to claim 6 further comprising an additional step of coding each of the correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices according to the scanned identification information.

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8. The method of obtaining a digital certificate for communication devices according to claim 6 further comprising an additional step of setting a completion flag indicative of successfully writing the digital certificate in the communication device upon successfully completing said writing step.

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9. The method of obtaining a digital certificate for communication devices according to claim 6 further comprising an additional step of deleting the digital certificate from the information processing device upon successfully completing said writing step.

5 10. An information processing apparatus for obtaining a digital certificate for communication devices, comprising:
 a digital certificate transmission request unit for adding identification information of a communication device to a digital certificate transmission request for obtaining a digital certificate to be used for confirming the communication device during
10 communication and transmitting the identification-information-added digital certificate transmission request to a digital certificate management device; and
 a digital certificate processing unit connected to said digital certificate transmission request unit for receiving a corresponding one of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request, said processing digital certificate unit
15 transmitting the correspondingly received digital certificate to the communication device and writing the correspondingly received digital certificate to memory in the communication device.

20 11. An information processing apparatus for obtaining a digital certificate for communication devices, comprising:
 a digital certificate transmission request unit for adding identification information of a predetermined number of communication devices for production to a digital certificate transmission request for obtaining digital certificates to be used for confirming the
25 communication devices during communication, said digital certificate transmission request unit transmitting the identification-information-added digital certificate transmission request to a digital certificate management device;
 a digital certificate processing unit connected to said digital certificate transmission request unit for receiving corresponding ones of the digital certificates from
30 the digital certificate management device in response to the identification-information-added digital certificate transmission request, said digital certificate processing unit

temporarily storing the correspondingly received digital certificates in memory of an information processing device; and

an inputting unit connected to said digital certificate processing unit for inputting a portion of the identification information on the predetermined number of the communication devices to said digital certificate processing unit, wherein said digital certificate processing unit reading the digital certificates corresponding to the inputted identification information from the information processing device, said digital certificate processing unit transmitting each of the correspondingly read digital certificates to a corresponding one of the communication devices according to the inputted identification information and writing each of the correspondingly read digital certificates to memory in the corresponding one of the communication devices.

5 communication devices to said digital certificate processing unit, wherein said digital certificate processing unit reading the digital certificates corresponding to the inputted identification information from the information processing device, said digital certificate processing unit transmitting each of the correspondingly read digital certificates to a corresponding one of the communication devices according to the inputted identification information and writing each of the correspondingly read digital certificates to memory in the corresponding one of the communication devices.

10 information and writing each of the correspondingly read digital certificates to memory in the corresponding one of the communication devices.

12. The information processing apparatus for according to claim 11 further comprising a coding unit connected to said digital certificate processing unit for coding each of the correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices according to the inputted identification information.

15 correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices according to the inputted identification information.

13. The information processing apparatus for according to claim 11 further comprising a flag setting unit connected to said digital certificate processing unit for setting a completion flag indicative of successfully writing the digital certificate in the communication device after said digital certificate processing unit successfully completes writing of the digital certificate in the communication device.

20 completion flag indicative of successfully writing the digital certificate in the communication device after said digital certificate processing unit successfully completes writing of the digital certificate in the communication device.

14. The information processing apparatus for according to claim 11 further comprising a deleting unit connected to said digital certificate processing unit for deleting the digital certificate from the information processing device after said digital certificate processing unit successfully completes writing of the digital certificate in the communication device.

25 deleting unit connected to said digital certificate processing unit for deleting the digital certificate from the information processing device after said digital certificate processing unit successfully completes writing of the digital certificate in the communication device.

15. An information processing apparatus for obtaining a digital certificate for communication devices, comprising:

a digital certificate transmission request unit for adding identification information of a predetermined number of communication devices for production to a digital certificate

30 communication devices, comprising:

a digital certificate transmission request unit for adding identification information of a predetermined number of communication devices for production to a digital certificate

transmission request for obtaining digital certificates to be used for confirming the communication devices during communication, said digital certificate transmission request unit transmitting the identification-information-added digital certificate transmission request to a digital certificate management device;

5 a digital certificate processing unit connected to said digital certificate transmission request unit for receiving corresponding ones of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request, said digital certificate processing unit temporarily storing the correspondingly received digital certificates in memory of an
10 information processing device; and

 a scanning unit connected to said digital certificate processing unit for scanning a barcode indicative of the identification information on the predetermined number of the communication devices from a predetermined source, wherein said digital certificate processing unit reading the digital certificates corresponding to the scanned identification
15 information from the information processing device, said digital certificate processing unit transmitting each of the correspondingly read digital certificates to a corresponding one of the communication devices according to the scanned identification information and writing each of the correspondingly read digital certificates to memory in the corresponding one of the communication devices.

20 16. The information processing apparatus for according to claim 15 further comprising a coding unit connected to said digital certificate processing unit for coding each of the correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices according to the inputted identification information.

25 17. The information processing apparatus for according to claim 15 further comprising a flag setting unit connected to said digital certificate processing unit for setting a completion flag indicative of successfully writing the digital certificate in the communication device after said digital certificate processing unit successfully completes
30 writing of the digital certificate in the communication device.

18. The information processing apparatus for according to claim 15 further comprising a deleting unit connected to said digital certificate processing unit for deleting the digital certificate from the information processing device after said digital certificate processing unit successfully completes writing of the digital certificate in the communication device.

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19. An information management system over a network, comprising:

a communication device further comprising a memory unit for storing a digital certificate;

10 an information processing unit connected to said communication device further comprising:

a digital certificate transmission request unit for adding identification information of a predetermined number of said communication devices for production to a digital certificate transmission request for obtaining digital certificates to be used for confirming said communication devices during communication and for transmitting the identification-information-added digital certificate transmission; and

15 a first digital certificate transmission unit connected to said digital certificate transmission request unit; and

20 a digital certificate management unit connected to said information processing unit further comprising:

a digital certificate generation unit for receiving the identification-information-added digital certificate transmission and generating a corresponding one of the digital certificates; and

25 a second digital certificate transmission unit connected to said digital certificate generation unit for transmitting the corresponding one of the digital certificates to said information processing unit,

wherein said digital certificate transmission unit receiving the corresponding one of the digital certificates from said second digital certificate transmission unit in response to the identification-information-added digital certificate transmission request, said first digital certificate transmission unit transmitting the correspondingly received digital certificate to the communication device and writing the correspondingly received digital certificate to said memory in the communication device.

20. The information management system according to claim 19 wherein said digital certificate transmission unit confirms the communication device based upon the digital certificate and further comprises a coding unit connected to said first digital certificate transmission unit for coding each of the correspondingly read digital certificates prior to
5 transmitting to a corresponding one of the communication devices.

21. The information management system according to claim 19 further comprising a flag setting unit connected to said information processing unit for setting a completion flag indicative of successfully writing the digital certificate in the communication device after
10 said first digital certificate transmission unit successfully completes writing of the digital certificate in the communication device.

22. The information management system according to claim 19 further comprising a deleting unit connected to said information processing unit for deleting the digital
15 certificate from said information processing device after said first digital certificate transmission unit successfully completes writing of the digital certificate in the communication device.

23. An information management system over a network, comprising:
20 a communication device further comprising a memory unit for storing a digital certificate;
 an information processing unit connected to said communication device further comprising:
 an input unit for inputting identification information for said
25 communication device;
 a digital certificate transmission request unit for adding identification information of a predetermined number of said communication devices for production to a digital certificate transmission request for obtaining digital certificates to be used for confirming said communication
30 devices during communication and for transmitting the identification-information-added digital certificate transmission;
 a digital certificate storage unit for storing the digital certificates; and

a first digital certificate transmission unit; and
a digital certificate management unit connected to said information processing unit further comprising:

a digital certificate generation unit for receiving the identification-information-added digital certificate transmission and generating a corresponding one of the digital certificates; and
a second digital certificate transmission unit connected to said digital certificate generation unit for transmitting the corresponding one of the digital certificates to said information processing unit,

10 wherein said digital certificate storage unit receiving the corresponding one of the digital certificates from said second digital certificate transmission unit in response to the identification-information-added digital certificate transmission request, said first digital certificate transmission unit reading the correspondingly received digital certificate from said digital certificate storage unit based upon the inputted identification information and
15 transmitting the correspondingly read digital certificate to the communication device so as to write the correspondingly read digital certificate to said memory in the communication device.

24. The information management system according to claim 23 wherein said digital certificate transmission unit confirms the communication device based upon the digital certificate and further comprises a coding unit connected to said first digital certificate transmission unit for coding each of the correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices.

25. The information management system according to claim 23 further comprising a flag setting unit connected to said information processing unit for setting a completion flag indicative of successfully writing the digital certificate in the communication device after said first digital certificate transmission unit successfully completes writing of the digital certificate in the communication device.

30 26. The information management system according to claim 23 further comprising a deleting unit connected to said information processing unit for deleting the digital

certificate from said information processing unit after said first digital certificate transmission unit successfully completes writing of the digital certificate in the communication device.

- 5 27. An information management system over a network, comprising:
 - a communication device further comprising a memory unit for storing a digital certificate;
 - an information processing unit connected to said communication device further comprising:
- 10 a scanning unit for scanning a barcode from said communication device as identification information for said communication device;
- 15 a digital certificate transmission request unit for adding identification information of a predetermined number of said communication devices for production to a digital certificate transmission request for obtaining digital certificates to be used for confirming said communication devices during communication and for transmitting the identification-information-added digital certificate transmission;
- 20 a digital certificate storage unit for storing the digital certificates; and
- 25 a first digital certificate transmission unit; and
- 30 a digital certificate management unit connected to said information processing unit further comprising:
 - a digital certificate generation unit for receiving the identification-information-added digital certificate transmission and generating a corresponding one of the digital certificates; and
 - a second digital certificate transmission unit connected to said digital certificate generation unit for transmitting the corresponding one of the digital certificates to said information processing unit,
- wherein said digital certificate storage unit receiving the corresponding one of the digital certificates from said second digital certificate transmission unit in response to the identification-information-added digital certificate transmission request, said first digital certificate transmission unit reading the correspondingly received digital certificate from said digital certificate storage unit based upon the scanned identification information and

transmitting the correspondingly read digital certificate to the communication device so as to write the correspondingly read digital certificate to said memory in the communication device.

5 28. The information management system according to claim 27 wherein said digital certificate transmission unit confirms the communication device based upon the digital certificate and further comprises a coding unit connected to said first digital certificate transmission unit for coding each of the correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices.

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29. The information management system according to claim 27 further comprising a flag setting unit connected to said information processing unit for setting a completion flag indicative of successfully writing the digital certificate in the communication device after said first digital certificate transmission unit successfully completes writing of the digital certificate in the communication device.

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30. The information management system according to claim 27 further comprising a deleting unit connected to said information processing unit for deleting the digital certificate from said information processing unit after said first digital certificate transmission unit successfully completes writing of the digital certificate in the communication device.

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31. A computer program performing certain functions for ultimately writing a digital certificate in a memory unit in communication devices, the functions comprising:

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 storing digital certificates each with corresponding identification information in a digital certificate management device;

 transmitting an identification-information-added digital certificate transmission request to the digital certificate management device after adding identification information of a communication device to the identification-information-added digital certificate

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 transmission request for obtaining a digital certificate to be used for confirming the communication device during communication; and

transmitting a correspondingly received digital certificate to the communication device and writing the correspondingly received digital certificate to memory in the communication device after receiving the corresponding one of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request.

32. A computer program performing certain functions for ultimately writing a digital certificate in a memory unit in communication devices, the functions comprising:

10 storing digital certificates each with corresponding identification information in a digital certificate management device;

15 transmitting an identification-information-added digital certificate transmission request to the digital certificate management device after adding identification information of a predetermined number of communication devices for production to the identification-information-added digital certificate transmission request for obtaining digital certificates to be used for confirming the communication devices during communication;

temporarily storing correspondingly received digital certificates in memory of an information processing device after receiving the corresponding ones of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request; and

20 transmitting each of corresponding digital certificates to a corresponding one of the communication devices according to inputted identification information and writing each of the corresponding digital certificates to memory in the corresponding one of the communication devices after reading the digital certificates corresponding to a portion of the inputted identification information on the predetermined number of the communication devices.

33. The computer program performing certain functions according to claim 32 further comprising an additional function of coding each of the correspondingly read digital certificates prior to transmitting to a corresponding one of the communication devices according to the inputted identification information.

34. The computer program performing certain functions according to claim 32 further comprising an additional function of setting a completion flag indicative of successfully writing the digital certificate in the communication device upon successfully completing said writing function.

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35. The computer program performing certain functions according to claim 32 further comprising an additional function of deleting the digital certificate from the information processing device upon successfully completing said writing function.

10 36. A computer program performing certain functions for ultimately writing a digital certificate in a memory unit in communication devices, the functions comprising:
storing digital certificates each with corresponding identification information in a digital certificate management device;
transmitting an identification-information-added digital certificate transmission
15 request to the digital certificate management device after adding identification information of a predetermined number of communication devices for production to the identification-information-added digital certificate transmission request for obtaining digital certificates to be used for confirming the communication devices during communication;
temporarily storing correspondingly received digital certificates in memory of an
20 information processing device after receiving the corresponding ones of the digital certificates from the digital certificate management device in response to the identification-information-added digital certificate transmission request; and
transmitting each of corresponding digital certificates to a corresponding one of the communication devices according to scanned a barcode indicative of identification
25 information and writing each of the corresponding digital certificates to memory in the corresponding one of the communication devices after reading the digital certificates corresponding to a portion of the scanned identification information on the predetermined number of the communication devices.

30 37. The computer program performing certain functions according to claim 36 further comprising an additional function of coding each of the correspondingly read digital

certificates prior to transmitting to a corresponding one of the communication devices according to the inputted identification information.

38. The computer program performing certain functions according to claim 36 further
5 comprising an additional function of setting a completion flag indicative of successfully writing the digital certificate in the communication device upon successfully completing said writing function.

39. The computer program performing certain functions according to claim 36 further
10 comprising an additional function of deleting the digital certificate from the information processing device upon successfully completing said writing function.

40. A communication device production system in connection with digital certificate management, comprising:

15 a production management system for managing production of a predetermined set of communication devices;
 a digital certificate database for storing digital certificates;
 a communication terminal connected to said production management system, said digital certificate database and the digital certificate management for controlling a flow of
20 obtaining the digital certificates from the digital certificate management and delivering the digital certificates to the communication devices based upon a digital certificate request;
 and
 a factory terminal connected to said communication terminal and the communication devices for delivering the digital certificates to the communication devices
25 as specified by the digital certificate request.

41. The communication device production system according to claim 40 wherein the digital certificate request specifies a set of the communication devices.

30 42. The communication device production system according to claim 40 wherein the digital certificate request specifies a single one of the communication devices.

43. The communication device production system according to claim 40 wherein said production management system issues the digital certificate request.

44. The communication device production system according to claim 40 further comprising an input device connected to said communication terminal for inputting information for the digital certificate request.

45. The communication device production system according to claim 40 further comprising a scanning device connected to said factory terminal for scanning a barcode on the communication device to input to said communication terminal information for the digital certificate request.

46. The communication device production system according to claim 40 wherein said factory terminal delivers the digital certificates to a predetermined set of the communication devices.

47. A method of producing communication devices with digital certificates, comprising the steps of:
20 managing production lines for a predetermined set of communication devices;
 storing digital certificates in a digital certificate database; and
 controlling a flow of obtaining the digital certificates from the digital certificate management and delivering the digital certificates to the communication devices based upon a digital certificate request.

25 48. The method of producing communication devices according to claim 47 wherein the digital certificate request specifies a set of the communication devices.

49. The method of producing communication devices according to claim 47 wherein the digital certificate request specifies a single one of the communication devices.

30 50. The method of producing communication devices according to claim 47 wherein the production lines issue the digital certificate request.

51. The method of producing communication devices according to claim 47 further comprising a step of inputting information for the digital certificate request.
52. The method of producing communication devices according to claim 47 further comprising an additional step of scanning a barcode on the communication device to input information for the digital certificate request.

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